

Notice of Allowability

Application No.

09/445,480

Applicant(s)

JONGSMA ET AL.

Examiner

Art Unit

Anne R. Kubelik

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

☒ This communication is responsive to 7/26/04.

☒ The allowed claim(s) is/are 8, 10-14, 17 and 40-45, renumbered 1-4, 7, 10, 13, 5-6, 8-9 and 11-12, respectively.

☐ The drawings filed on _____ are accepted by the Examiner.

☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No./Mail Date 12/19/03.

(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

☐ Notice of References Cited (PTO-892)

☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____

☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____

7. ☒ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____

Examiner's Amendment

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 30 April 2004 and 26 July 2004 have been entered.

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Cynthia Lee on 22 September 2004.

IN THE CLAIMS:

Claims 18 and 27-36 are cancelled without prejudice.

Claim 8. (Currently Amended) A method of protecting a plant or a part of said plant against insect or nematode infestation by one or more insects or nematodes having digestive cysteine proteases, wherein the method comprises [comprising] the steps of:

(a) culturing cells or tissue from the plant;

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(b) inserting into the genome of the cells or tissue a DNA construct comprising a nucleic acid [sequence of SEQ ID NO:1 coding for a] encoding the cysteine protease inhibitor [selected from the group of proteins having an amino acid sequence] of SEQ ID NO:2 [, with] operably linked to a promoter sequence active in the plant, wherein the inhibitor is expressed [to cause expression of said protein] at levels which provide an insect- or nematode-controlling amount of said inhibitor [protein]; and

(c) regenerating a resistant whole plant[s] from the cells or tissue.

Claim 10. (Currently Amended) The method according to claim 8, which comprises the further step of (d) sexually or clonally reproducing the whole plant[s] to produce a reproduced plant, wherein the reproduced plant has [in such a manner that] at least one copy of the DNA construct [sequence coding for the protein containing at least one type 1 repeated thyroglobulin domain with a promoter sequence active in the plant is] present in [the] its cells [of the thus formed reproduced plants].

Claim 11. (Currently Amended) The method according to claim 10, further comprising the steps of:

[(a) providing a fertile plant prepared by the method of claim 10, which plant is either insect or nematode resistant;]

(d) [(b)] sexually crossing the reproduced plant [that is either insect or nematode resistant] with [a plant from] an insect or nematode susceptible [variety] plant;

(e) [(c)] recovering [reproductive material] seeds from the [progeny of the] cross; [and]

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(f) [(d)] growing [resistant] progeny plants from the [reproductive material] seeds; and

(g) selecting insect or nematode resistant plants from the progeny plants.

Claim 12. (Currently Amended) The method according to claim 11, which comprises the further steps of repetitively;

(h) [(a)] backcrossing the resistant plants [prepared by the method of claim 11] with substantially homozygous plants from an insect or nematode susceptible variety; and

(i) [(b)] selecting for expression of both insect or nematode resistance and [other] characteristics of the susceptible variety among the progeny of the backcross, until the desired percentage of the characteristics of the susceptible variety are present in the progeny along with the insect or nematode resistance.

Claim 13. (Currently Amended) A transgenic plant [or its sexual progeny which] that is resistant to attack by one or more insects or nematodes having digestive cysteine proteases, wherein said transgenic plant comprises a nucleic acid encoding a protein of SEQ ID NO:2 and wherein the plant expresses [expressing] an insect- or nematode-controlling amount of the [a] protein [having an amino acid sequence of SEQ ID NO:2].

Claim 14. (Previously Amended) An expression vehicle comprising a promoter effective to promote expression of a downstream coding sequence in plant cells, operatively linked to a [DNA coding region of SEQ ID NO:1 coding for the expression in plant cells of] nucleic acid encoding a protein [having an amino acid sequence] of SEQ ID NO:2, and a termination

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sequence effective to terminate transcription or translation of the protein product in plant cells, wherein the expression vehicle [being effective to] expresses in plant cells insect-controlling amounts of the protein [comprising at least one type I repeated thyroglobulin domain].

Claim 40 (new). The method of claim 8, wherein the nucleic acid is SEQ ID NO:1.

Claim 41 (new). The method of claim 8, wherein the nucleic acid is SEQ ID NO:3.

Claim 42 (new). The plant of claim 13, wherein the nucleic acid is SEQ ID NO:1.

Claim 43 (new). The plant of claim 13, wherein the nucleic acid is SEQ ID NO:3.

Claim 44 (new). The expression vehicle of claim 14, wherein the nucleic acid is SEQ ID NO:1.

Claim 45 (new). The expression vehicle of claim 14, wherein the nucleic acid is SEQ ID NO:3.

IN THE ABSTRACT:

A method of protecting a plant or part of a plant from insect or nematode infestation is disclosed herein. The method includes the steps of: ~~(a) culturing cells or tissue from the plants;~~ (b) inserting into the genome of ~~the~~ cells or tissue from a plant a sequence coding for assisting

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~~protease inhibitors selected from the group of proteins containing at least one type I repeated thyroglobulin domain, with equistatin operably linked to a promoter sequence active in the plant~~ to cause expression of the protein at levels which provide an insect or nematode controlling amount of the protein; and (e) regenerating resistant whole plants from the cells or tissue. Also disclosed is a transgenic plant or its sexual progeny which is resistant to attack by one or more insects or nematodes having digestive cysteine proteases. Also disclosed is an expression vehicle that includes a promoter effective to promote expression of a downstream coding sequence in plant cells, the expression vehicle being effective to express in plant cells insect controlling amounts of ~~a protein that includes at least one type I repeated thyroglobulin domain~~ equistatin.

IN THE TITLE:

A METHOD FOR PLANT PROTECTION AGAINST INSECTS OR NEMATODES
BY TRANSFORMATION WITH A NUCLEIC ACID ENCODING EQUISTATIN

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

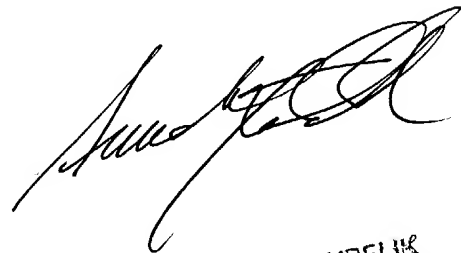
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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Anne R. Kubelik, Ph.D.
September 22, 2004



ANNE KUBELIK
PATENT EXAMINER